IN THE CLAIMS:

1.-29. (cancelled)

30. (Currently Amended) A monitoring device for use with a household electric appliance, the monitoring device comprising:

i. a read and write memory storing a plurality of measurements of ~~said~~ at least one physical quantity relating to the household electric appliance within a predetermined time period during a treatment cycle ~~relating to the household electric appliance~~, the storing of a last measured value of said at least one physical quantity causing the deletion of a first measured value within said plurality of values in the read and write memory;

ii. a first interface means to connect to one or more sensors for measuring said at least one physical quantity of the household electric appliance;

iii. a means for measuring at least one electric quantity by measuring an electric current running through the monitoring device;

iv. a storage means containing one or more predefined values of the at least one physical quantity;

v. a microcontroller to process ~~measurements of the~~ a particular combination of at least one physical quantity and ~~the~~ at least one electric quantity to determine an actual combination at an instant in time of a particular set of physical and electrical quantities, the microcontroller being further configured to compare that particular combination ~~at least one piece of information relating to the operation of the household electric appliance or being employed in a treatment cycle during operation of the household electric appliance, by comparing a value of said at least one physical quantity with one or~~ one or more respective predefined values contained in the non-volatile memory each predefined value being a threshold value against which

an actual value is compared to determine a proper operation of a particular component of the appliance at that instant in time; and

vi. a second interface means to send the at least one piece of information to a remote center for storage.

31. (Previously Presented) The monitoring device as in claim 30, further comprising:

a wireless communication device within the first interface means, the wireless communication device communicating with at least one internal sensor within the household electric appliance where the at least one internal sensor measures a second physical quantity of an internal part of the household electric appliance; and

the microcontroller adapted to further process the measurements of the second physical quantity.

32. (Cancelled)

33. (Currently Amended) The monitoring device of claim 30, further comprising:

a timing unit, where the timing unit allows an instant in time to be associated with the measurements of the one or more physical quantities and at least one ~~electrical~~ electric quantity.

34. (Previously Presented) The monitoring device of claim 30, wherein the at least one electrical quantity includes at least one of: momentary electric current drawn by the household electric appliance, line voltage applied to the household electric appliance, momentary electric power drawn by the household electric appliance, electric energy consumption of the household electric appliance within a predefined time period, a power factor of the load represented by the household electric appliance, cos(Φ) of the load represented by the household electric appliance, and type of reactive power of the load represented by the household electric appliance.

35. (Previously Presented) The monitoring device of claim 30, wherein the first interface is connected to the one or more sensors through a wireless connection.

36. (Previously Presented) The monitoring device of claim 30, wherein the second interface means is connected to the remote center through a wireless connection.

37. (Previously Presented) The monitoring device of claim 30, wherein the household electric appliance includes one of: a clothes dryer, a washing/drying machine, a dishwasher, a refrigerator, a freezer, a refrigerator/freezer, an electric oven, a gas oven, a microwave oven, a gas cooking top, an electric cooking top, a magnetic induction cooking top, a kitchen hood, a conditioner, a gas boiler, an electric water heater, an air conditioner, a hair dryer, an iron, a Hi-Fi system, a mixer or any other electric kitchenware, a lighting device, an alarm device.

38. (Currently Amended) The monitoring device of claim 30, wherein ~~the one or more physical quantities~~ said at least one physical quantity includes at least one of: temperature, flow rate, conductivity, weight, absolute humidity, relative humidity, pressure, linear displacement, linear velocity, linear acceleration, angular displacement, angular velocity, angular acceleration, chemical concentration, sound pressure, sound intensity, light intensity, oscillation frequency, and oscillation amplitude.

39. (Previously Presented) The monitoring device of claim 30, further comprising:

an information storage means for storing the at least one piece of information in the read and write memory.

40. (Currently Amended) The monitoring device in claim 30, wherein the household electric appliance is one of a laundry washing machine and a washing/drying machine adapted to perform at least one wash treatment on textile items, ~~the one or more physical quantities~~said at least one physical quantity being preferably at least one of the following: weight of the textile items being present in the basket of the washing machine or the

washing/drying machine, flow rate of water supplied to the washing machine or the washing/drying machine, temperature of washing liquid contained in a tub of the washing machine or the washing/drying machine, and conductivity of the washing liquid drained by the washing machine or the washing/drying machine, where the washing liquid comprises water and at least one washing agent.

41. (Currently Amended) A monitoring device for use with a household electric appliance, the monitoring device comprising:

i. a read and write memory storing a plurality of measurements of at least one physical quantity related to the household electric appliance, within a predetermined time period during a treatment cycle, the storing of a last measurement of said at least one physical quantity causing the deletion of a first measurement of said at least one physical quantity;

ii. a first interface means to connect to one or more external sensors and one or more internal sensors for measuring said at least one physical quantity of the household electric appliance, where the one or more internal sensors are connected to the monitoring device by way of an electronic control means and the first interface means;

iii. a means for measuring at least one electric quantity by measuring an electric current running through the monitoring device;

iv. a microcontroller configured to:

a) process measurements of the one or more physical quantities and the at least one electric quantity to determine at least one piece of information relating to or being employed in ~~a~~ said treatment cycle during operation of the household electric appliance, where the at least one piece of information includes at least one of: functional information, statistical information, and diagnostic information relating to the household electric appliance by comparing a value of said at least one physical quantity with one or more predefined values that relate to values for the treatment being

performed by the appliance at an instant in time~~during said predetermined time period~~; and

b) extrapolate from said plurality of measurements of said at least one physical quantity a data packet representative of the evolution of said at least one physical quantity within said predefined time period over one or more treatment cycles; and

v. an information storage means for storing the at least one piece of information in the read and write memory.

42. (Previously Presented) The monitoring device of claim 41, wherein the first interface means is an electric cable to the one or more external sensors.

43. (Previously Presented) The monitoring device of claim 41, wherein the first interface means is wirelessly connected to the communication means.

44. (Previously Presented) The monitoring device of claim 41, wherein the first interface means is wirelessly connected to the one or more external sensors.

45. (Previously Presented) The monitoring device of claim 41, wherein the first interface means is connected to the first communication means.

46. (Previously Presented) The monitoring device of claim 41, wherein the communication means and the one or more internal sensors are connected through an electronic control means, where the electronic control means collects, stores, and processes the measurements from the at least one physical quantity from the one or more internal sensors.

47. (Currently Amended) A system for monitoring a household electric appliance, the system comprising:

a) a household electric appliance;

b) one or more external sensors to measure one or more physical external

quantities of the household electric appliance being external measurements;

c) an electronic control means connected to one or more internal sensors, where the one or more internal sensors measure one or more physical internal quantities of the household electric appliance, the electronic control means configured to collect, store, and process measurements of the one or more physical internal quantities being internal measurements;

d) a communication means communicating with the electronic control means to transfer one or more of said external measurements and one or more of said internal measurements, over a predetermined time period to a first interface means on a monitoring device;

e) the monitoring device including:

a. a read and write memory storing a plurality of measurements of at least one physical quantity within a predetermined time period, the storing of a last measurement of said at least one physical quantity causing the deletion of a first measurement of said at least one physical quantity,

b. the first interface means to connect to the one or more external sensors and the communication means to receive the measurements of the one or more physical external quantities and the one or more physical internal quantities,

c. a means for measuring at least one electric quantity by measuring an electric current running through the monitoring device,

d. a timing unit to associate an instant in time at which the measurements of the one or more physical quantities and the at least one electric quantity are taken,

e. a microcontroller configured to:

(i) process the measurements of the one or more physical external quantities with one or more physical internal quantities, and the at least one electric quantity, at the instant

in time, to determine ~~at least one piece of~~ sensed information relating to the household electric appliance, where the ~~at least one piece of~~ sensed information includes ~~at least one of~~: functional information, statistical information, and diagnostic information relating to the household electric appliance, said sensed information being ~~by comparing~~ a combination of values of at least one physical external quantity, physical internal quantity and at least one ~~electrical~~ electric quantity with a reference combination of physical and electrical quantities being the combination that best represents the proper operation of the appliance at that instant in time, and

(ii)

collect information that allows the system to trace a history of the monitored electric appliance that permits the microprocessor to build in the read and write memory, profiles being indicative of a trend within a predefined time period of a particular physical quantity or typology of information obtained by the microcontroller based upon values detected by the sensors; and

f. a second interface means to send the at least one piece of information to a remote center; and

g. the remote center configured to collect the at least one piece of information from one or more monitoring devices connected to respective household electric appliances and to extract statistical information about the household electric appliances being monitored.

48. (Previously Presented) The system of claim 47, wherein the remote center receives a plurality of information sent by the monitoring device that the remote center collects and sorts for the purpose of identifying at least one parameter related to the operation of a

washing machine or a washing/drying machine, the at least one parameter being preferably at least one of the following: number of wash treatments performed by the washing machine or the washing/drying machine within a predefined time interval, quantity and typology of textile items loaded on average by a user for each wash treatment, quantity and typology of washing agents loaded on average by the user for each wash treatment, average quantity of water used by the washing machine or the washing/drying machine for each wash treatment, and average electric energy absorbed by the washing machine or the washing/drying machine for each wash treatment.

49. (Cancelled)